

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

**ENERGY DIVISION
E-5034**

**AGENDA ID: 17923
RESOLUTION**

December 19, 2019

R E S O L U T I O N

Resolution E-5034. Resolution authorizing bill protection mechanisms for Pacific Gas and Electric Company, Southern California Edison Company, and Southern California Gas Company San Joaquin Valley pilot participants pursuant to Decision 18-12-015.

PROPOSED OUTCOME:

- Approves Southern California Gas Company (SoCalGas) Advice Letter (AL) 5439-G.
- Approves Pacific Gas and Electric Company (PG&E) AL 5496-G and Southern California Edison Company (SCE) AL 3970-E with modifications, as set forth in this resolution.
- Directs PG&E and SCE to each file Tier 2 ALs with an evaluation analyzing pilot participants' total energy cost savings.
- Directs PG&E and SCE to provide a monthly transitional community solar discount to pilot customers under certain conditions.

SAFETY CONSIDERATIONS:

- There is no impact on safety.

ESTIMATED COST:

- PG&E's bill protection cost to ratepayers is projected to be between approximately \$3.0 and \$4.2 million.
- SCE's bill protection cost to ratepayers is projected to be between \$700,000 and \$1 million.
- There are no projected costs to ratepayers for SoCalGas' approved AL.
- The projected cost of the transitional community solar discount is unknown.

By PG&E Advice Letter 5496-E filed on March 18, 2019, SCE Advice Letter 3970-E filed on March 19, 2019, and SoCalGas Advice Letter 5439-G filed on March 18, 2019.

SUMMARY

This Resolution directs Pacific Gas and Electric Company (PG&E) and Southern California Edison Company (SCE) to establish a bill protection mechanism for customers participating in San Joaquin Valley (SJV) pilots in each utility's service territory. PG&E and SCE must implement the bill protections mechanism under the terms set forth in this Resolution, including an evaluation that analyzes pilot participants' total energy cost savings. The Resolution also directs PG&E and SCE to implement a transitional community solar discount to SJV pilot customers under the terms set forth in the Resolution.

The Resolution recommends the Commission modify the *Decision Approving San Joaquin Valley Disadvantaged Communities Pilot Projects* ((D.)18-12-015) to allow PG&E and SCE to recover costs associated with the bill protection discounts authorized in this Resolution that may exceed the total bill protection funding authorized in D.18-12-015. The Resolution also recommends the Commission modify D.18-12-015 to allow PG&E and SCE to recover costs associated with the transitional community solar discounts authorized in this Resolution.

The Resolution approves Southern California Gas Company (SoCalGas) Advice Letter 5439-G to establish a bill protection mechanism for customers participating in SoCalGas' natural gas pilot in California City.

BACKGROUND

Assembly Bill (AB) 2672 (Perea, 2013) required the California Public Utilities Commission (Commission or CPUC) to initiate a new proceeding to identify disadvantaged communities in the San Joaquin Valley (SJV) based on certain criteria¹ and to analyze the economic feasibility of the following options:

¹AB 2672 states that a disadvantaged community meets the following criteria: at least 25 percent of residential households with electrical service are enrolled in the CARE

Footnote continued on next page

- 1) Extending natural gas pipelines to those disadvantaged communities;
- 2) Increasing subsidies for electricity for residential customers in those disadvantaged communities; and
- 3) Other alternatives that would increase access to affordable energy in those disadvantaged communities that the Commission deems appropriate.

The bill also required the CPUC to determine whether any of the analyzed options would increase access to affordable energy in a cost-effective manner, and to determine appropriate funding sources. AB 2672 was codified in California Public Utilities (PU) Code Section 783.5.

In 2015, the Commission initiated Rulemaking (R.)15-03-010 to meet the directives of PU Code Section 783.5. In 2017, the Commission issued Decision (D).17-05-014, which found that 170 communities met the criteria set forth in Section 783.5 to identify disadvantaged communities in the SJV. In 2018, the Commission issued Decision (D.)18-12-015 (SJV Pilots Decision) that authorizes pilots in 11 SJV disadvantaged communities to replace propane and wood burning appliances with electric appliances or a natural gas line extension. The Commission approved \$56 million in funding for the 11 pilot projects.

Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), and a third-party pilot administrator and pilot implementer (PA/PI) to be selected through a competitive request for proposal (RFP) will administer electrification pilot projects in 10 communities. Southern California Gas Company (SoCalGas) will administer a natural gas pilot project in one community. The following communities will be served by PG&E, SCE, the selected third-party PA/PI, and SoCalGas:

PG&E	Allensworth, Cantua Creek, Seville
SCE	California City (<i>electrification</i>), Ducor, West Goshen
Third-Party PA/PI	Alpaugh, Fairmead, Lanare, La Vina, Le Grand
SoCalGas	California City (<i>natural gas line extension</i>)

program pursuant to Section 739.1; has a population greater than 100 persons within its geographic boundaries as identified by the most recent US Census or a community survey; and has geographic boundaries no farther than seven miles from the nearest natural gas pipeline operated by a gas corporation.

The SJV Pilots Decision authorizes PG&E, SCE and the selected third-party PA/PI to install grid-interactive heat pump water heaters, heat pump space heating and cooling units, advanced weatherization measures, induction cooktops, and high efficiency electric clothes dryers. The SJV Pilots Decision also directs PG&E, SCE and the selected third-party PA/PI to leverage existing solar programs for disadvantaged communities as part of the pilot projects, including the Disadvantaged Communities-Green Tariff (DAC-GT) Program, Community Solar Green Tariff (CSGT) Program, and Disadvantaged Communities-Single-family Solar Homes (DAC-SASH) Program.

In Section 11.2 of SJV Pilots Decision, the Commission states that ensuring that participating households experience energy cost savings is a central objective of the pilots. The decision declines to adopt a specific bill protections approach, but directs PG&E, SCE, and SoCalGas to collaborate with Commission staff to notice, host, and facilitate a workshop to discuss bill protection approaches by no later than 45 days from issuance of the decision.

Ordering Paragraph (OP) 15d in the SJV Pilots Decision directs PG&E, SCE and SoCalGas to file Tier 2 advice letters (ALs) that address the issues identified in Section 11.2 of the decision within 45 days of the bill protection workshop, which detail their planned approaches to ensuring pilot participants' energy cost savings.

Section 11.2 of the SJV Pilots Decision states that the investor-owned utility (IOU) bill protection workshop proposals and IOUs' bill protection and affordability advice letters:

- Should incorporate monthly bill protection, and, as appropriate, annual true-up, mechanisms and must aim to avoid any monthly "bill shock" for participants;
- Should consider all pre- and post- pilot implementation energy costs (propane, wood, as feasible; and, as appropriate, natural gas and electricity costs);
- May consider a higher baseline allowance and/or a waiver of the Super User Electric Surcharge;
- Must be standardized across PG&E and SCE, who must collaborate and propose the same approach and present this in nearly identical advice letters;

- Will not require presentation of individual customer propane and/or wood bills as an eligibility criteria, but rather will be based on modeled customer costs and generalized assumptions, which may be reviewed and updated periodically to adjust the approach, as needed;
- Will be offered for an initial period of three years to each household receiving appliance upgrades, with a cost of \$500 per household as a starting point; and
- Will consider likely rebound effects and comfort needs, particularly amongst the poorest households that may have severely curtailed propane usage for water and/or space heating due to high costs.

Further, Section 11.2 directs the IOUs to serve and file aggregated, anonymized pre/post-bill impact data for all households that receive appliance upgrades as part of the pilot on a quarterly basis starting at the end of Q1, 2020, unless directed otherwise by the Energy Division Director. Section 11.2 also approves up to \$500 in costs for each household receiving appliance upgrades as part of the pilot project, and states this level is a starting point for possible per household costs.

PG&E, SCE and SoCalGas convened a bill protection workshop with stakeholders on February 1, 2019, and convened a second follow-up workshop with stakeholders on February 25, 2019. On March 18, 2019, the IOUs filed timely Tier 2 bill protection ALs with their proposed approaches to ensuring energy cost savings for pilot participants. PG&E filed AL 5496-E, SCE filed AL 3970-E, and SoCalGas filed AL 5439-G.²

PG&E, SCE, and SDG&E all submitted similar proposals to ensure energy cost savings for SJV pilot participants in their ALs. Below we describe these bill protection proposals, broken down into the following categories: bill protection

² PG&E filed AL 5496-E *Proposed Bill Protection Approach to Implement in Phase 2 of the San Joaquin Valley Disadvantaged Communities Pilot Proceeding*. SCE filed AL 3970-E *Bill Protection Proposal for Southern California Edison Company's San Joaquin Valley Disadvantaged Community Pilot Projects Pursuant to Decision 18-12-015*. SoCalGas filed AL 5439-G *Establishment of Bill Protection, Pursuant to Decision (D.) 18-12-015*.

mechanism; modeling approach; estimated energy cost savings; and implementation recommendations.

PG&E, SCE and SoCalGas SJV Pilot Bill Protection Proposals

Bill Protection Mechanism

PG&E, SCE, and SoCalGas all propose to provide approximately \$500 in electricity bill credits total to each participating pilot household over a three-year period.

SoCalGas proposes that participants receive \$160 each year in electricity bill credits for the first three years of the natural gas pipeline pilot. These credits would be applied to winter monthly bills and sized based on seasonal variation to provide maximum reduction in bill variance.

PG&E and SCE propose to scale down the bill credits over time in order for customers to acclimate to new appliances and energy conservation techniques. Participants would receive a total of \$288 in year one of the pilot, \$140 in year two, and \$72 in year three. These electricity bill credits would be distributed monthly and be sized based on season to mitigate bill shock.³ PG&E and SCE do not provide detail on how the credits would be sized based on season.

Modeling Approach

PG&E and SCE conducted modeling in order to estimate total energy cost savings for participating pilot customers. A total energy cost savings analysis considers non-electric energy costs that customers may incur, as opposed to an electricity bill savings analysis, which only considers electricity bill costs.⁴

PG&E and SCE's modeling approach is described in this section. SoCalGas did not model energy cost savings for customers, and thus we do not describe its

³ The SJV Pilots Decision does not define bill shock. PG&E, SCE, and SoCalGas interpret bill shock in this context to mean an unexpected increase on a customer's electricity bill due to seasonal variation.

⁴ For example, a customer would experience energy cost savings under PG&E and SCE's total energy cost savings analysis if the customer's post-pilot electricity bill is less than the cost of the customer's pre-pilot propane bills plus the customer's pre-pilot electricity bill.

modeling approach here.⁵ PG&E's and SCE's overall modeling approach is similar, though several of their assumptions and inputs differ. At a high level, PG&E and SCE used the following modeling approach:

- Determined how much CARE and non-CARE pilot participants would save by eliminating propane costs;
- Determined a distribution of expected electric bill increases for CARE and non-CARE participants based on estimated electric appliance usage increases; and
- Subtracted the expected electric bill increases from estimated propane savings to estimate overall energy cost savings for CARE and non-CARE participants.

PG&E also determined the most extreme, or "worst case," potential energy cost increase for CARE customers by subtracting highest expected electricity bill increase from the lowest expected propane savings for CARE customers. Below we list PG&E and SCE's specific modeling assumptions and inputs.

Assumptions and Inputs

Propane assumptions

PG&E and SCE used pre-pilot propane cost assumptions according to the table below. They assumed post-pilot propane usage to be zero.

Pre-Pilot Propane Cost Assumptions⁶

	CARE customers		Non-CARE customers	
PG&E	\$500 annually	<i>Source:</i> Anecdotal reports from workshop. Lowest propane estimate PG&E has heard to date.	\$1350 annually	<i>Source:</i> PG&E methodology from its 2018 electric pilot proposal
SCE	\$500	<i>Source:</i> Anecdotal	\$1196 annually	<i>Source:</i> SCE

⁵ SoCalGas did review average bills of households with natural gas service to determine peak usage by month. This analysis helped it determine how to apply credits to winter monthly bills to provide maximum reduction in bill variance.

⁶ PG&E and SCE refer to the \$500 propane assumption for CARE customers as the "extreme curtailer" scenario. An extreme curtailer is a customer that curtails their propane use to keep their fuel costs as low as possible.

	annually	reports from workshop. Lowest propane estimate SCE has heard to date.		methodology in its 2018 electric pilot proposal
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Post-pilot electricity bill inputs

PG&E used 635 existing customer electricity bills from their pilot communities as a baseline for analysis. SCE used 4,400 existing customer electricity bills from their pilot communities as a baseline for analysis.

PG&E and SCE assume all customers install the four appliances listed in the table below. As seen in the table, PG&E and SCE use different appliance usage assumptions.⁷

Post-Pilot Appliance Usage Assumptions

	Heat pump space conditioning	Heat pump water heater	Heat pump dryer	Electric cooktop oven
PG&E	3500 kWh/yr	1004 kWh/yr	310 kWh/yr	150 kWh/yr
SCE	1946 kWh/yr	1110 kWh/yr	693 kWh/yr	282 kWh/yr

Bill discounts and credits

PG&E and SCE place all customers on all-electric baseline E1 rate. Then PG&E and SCE apply the following discounts and credits:

- 36 percent or 32.5 percent CARE discount to all CARE-eligible customers⁸ ; or 18 percent Family Electric Rate Assistance (FERA) discount to all FERA-eligible customers
- 20 percent DAC-GT or CSGT community solar discount;⁹ and
- Proposed \$500 electricity bill credit over three years

Rebound Effects

⁷ PG&E's appliance usage estimates are based on the 2009 Residential Appliance Saturation Study (RASS) sponsored by the California Energy Commission. SCE's appliance usage estimates are partly based on the RASS and partly on SCE work papers.

⁸ PG&E's currently authorized CARE discount is 36 percent; SCE's is 32.5 percent.

⁹ PG&E and SCE assume all customers enroll in either Disadvantaged Communities Green Tariff Program or Community Solar Green Tariff Program.

PG&E did not explicitly model the rebound effects that might occur when participants are able to access and utilize new electric appliances. Rebound effects are the reduction in expected efficiency gains from new technologies due to behavioral shifts in customer energy usage based on improved health, comfort, and safety.

PG&E states that instead of explicitly modeling rebound effects as a separate incremental value to be applied to post-electrification usage, it used the following estimations:

- 1) Did not model changes in customer usage due to elimination of inefficient electric appliances like space heaters
- 2) Did not model savings due to energy efficiency treatments
- 3) Used significantly higher space conditioning consumption than in the Residential Appliance Saturation Survey (RASS) study¹⁰
- 4) Did not model improved efficiency of electric appliances since RASS study conducted in 2009
- 5) Used incremental consumption data of single-family homes for all households, even though RASS consumption data is lower for mobile homes and multifamily units

PG&E states that customers are expected to benefit considerably from these factors post electrification, but these factors were not incorporated into its analysis, thereby resulting in a cushion in its usage estimate.

SCE also did not explicitly model rebound effects as a separate variable to be applied to post electrification usage. Instead, it did not account for:

- 1) Changes in electric consumption due to the use of inefficient electric appliances (e.g. electric space heaters) prior to treatment
- 2) Weatherization upgrades
- 3) Improved efficiency of electric appliances since the 2009 RASS study

¹⁰ PG&E increased its heat pump space conditioning usage by over a factor of four compared to its 2018 electric pilot proposal. This adjustment is intended to account for both heating and cooling consumption of the heat pumps and to account for high air conditioning loads that border on Climate Zone 7.

Similar to PG&E, SCE states that pilot participants could realize additional energy savings from these factors that are not accounted for in the post electrification calculation, and therefore participants may see greater overall energy savings than estimated. SCE also states that it did increase the annual consumption for the heat pump space conditioning appliance to 1946 kWh to account for current customers increasing consumption by 30 percent in summer months to winter months.

Estimated Energy Cost Savings for CARE and non-CARE Customers

In their advice letters, PG&E and SCE estimated energy cost savings for CARE and non-CARE customers based on the modeling described in the above section. As mentioned previously, SoCalGas did not estimate cost savings for CARE and non-CARE customers.

PG&E and SCE do not include median CARE and non-CARE customer pre-pilot total energy costs in their ALs as a baseline from which to compare results. The Energy Division data requested this information from PG&E and SCE. Below we list these pre-pilot energy costs to provide a sense of scale for the modeling results that follow. These energy costs are based on existing customer electricity bills from pilot communities plus an annual propane assumption of \$500 for CARE customers and \$1350 and \$1126 for non-CARE customers in PG&E and SCE territories, respectively.

Annual Pre-Pilot Median Total Energy Costs

	CARE	Non-CARE
PG&E	\$1,513	\$3,194
SCE	\$1,460	\$2,243

PG&E and SCE emphasize in their advice letters that, based on their analysis, most customers will save on energy costs even in the absence of the \$500 bill credit (i.e. after the three-year bill credit ends). Given that these pilots will impact customer bills beyond a three-year time period, and PG&E and SCE describe the \$500 bill credit as a transitional mechanism, we choose to highlight below their modeling energy cost savings estimates for customers in year four of the pilots onward, after the \$500 in bill credits have already been applied.

PG&E Energy Cost Savings Estimates (year four of the pilot onward)

CARE customers

- Median CARE customer would save \$122 annually compared to pre-pilot energy costs.

- Worst case CARE customer would experience a \$16 annual energy cost increase.¹¹

Non-CARE customers

- Median non-CARE customer would save \$221 annually compared to pre-pilot energy costs.
- 98.6 percent of non-CARE customers would experience energy cost savings compared to pre-pilot energy costs, while 1.4 percent would experience an energy cost increase compared to pre-pilot energy costs.¹²
- There are a handful of non-CARE customers that would experience over \$2,000 in energy cost increases compared to pre-pilot costs, but PG&E believes these customers have unique circumstances, such as two homes on the same meter.

SCE Energy Cost Savings Estimates (year four of the pilot onward)¹³

CARE customers

- Average CARE customer would save \$497 annually compared to pre-pilot energy costs.
- SCE does not provide a worst case CARE customer estimate in its advice letter.

Non-CARE customers

- Median non-CARE customer would save \$636 annually compared to pre-pilot energy costs.¹⁴

Implementation Recommendations

¹¹ PG&E defines the “worst case” customer as the CARE customer with the highest expected electric bill increase and lowest expected propane savings.

¹² PG&E does not state the range of modeled energy cost savings or energy cost increases related to this finding.

¹³ In its protest to SCE’s AL, when GRID Alternatives substituted SCE’s heat pump space conditioning load of 1946 kWh/year with PG&E’s input of 3500 kWh/year and ran SCE’s inputs through its model, the results significantly differed. According to GRID’s model, SCE’s median CARE customer would save \$126 annually, and SCE’s median non-CARE customer would experience a \$26 increase.

¹⁴ In its AL, SCE presents the CARE results for the average customer, and non-CARE results for a median customer.

PG&E and SCE recommend that in order to be electrified, pilot participants must agree to receive both the heat pump space conditioning and heat pump water heater. Although the SJV Pilots Decision allows pilot administrators the flexibility to not install heat pump space heating in some homes, SCE states that households that do not install both appliances will achieve a reduced level of bill savings that runs counter to pilot objectives.

PG&E and SCE propose that the monthly electricity bill savings discount begin when the heat pump space conditioning unit is installed. According to PG&E and SCE, this would align with the trigger to move customers to an all-electric baseline allowance. PG&E and SCE also propose to require participants in arrears to subscribe to a payment plan before enrolling.

PG&E, SCE, and SoCalGas do not propose a waiver of the Super User Electric Surcharge. PG&E states that only 11 percent of customers across the eight PG&E communities with pilots hit the High Usage Surcharge in any month in 2018. SCE states that less than one percent of customers across SCE's three communities reached the High Usage Surcharge in any month in 2017. SoCalGas does not provide data to support its decision.

Instead, PG&E and SCE propose to place all customers on an all-electric version of their rate in order to receive a higher baseline allowance. According to PG&E, this should significantly reduce the percentage of customers expected to trigger the surcharge.

NOTICE

Notice of AL 5496-E was made by publication in the Commission's Daily Calendar. Pacific Gas and Electric Company states that a copy of the Advice Letter was mailed and distributed in accordance with Section 4 of General Order 96-B.

Notice of AL 3970-E was made by publication in the Commission's Daily Calendar. Southern California Edison Company states that a copy of the Advice Letter was mailed and distributed in accordance with Section 4 of General Order 96-B.

Notice of AL 5439-G was made by publication in the Commission's Daily Calendar. Southern California Gas Company states that a copy of the Advice

Letter was mailed and distributed in accordance with Section 4 of General Order 96-B.

PROTESTS

On April 8, 2019, the following parties filed timely protests to PG&E AL 5496-E and SCE AL 3970-E: GRID Alternatives (GRID); University of California Berkeley Environmental Law Clinic on behalf of the Center on Race, Poverty & the Environment, Leadership Counsel for Justice and Accountability, Self-Help Enterprises, and The Greenlining Institute (collectively, the “Pilot Team”); Public Advocates Office (CalPA); The Utility Reform Network (TURN); and Center for Accessible Technology (CforAT).

On April 8, 2019, the following parties filed timely protests to SoCalGas AL 5439-G: the Pilot Team and CalPA.

On April 15, 2019, PG&E and SCE jointly replied to the protests, and SoCalGas replied to the protests.

GRID and the Pilot Team Protests to PG&E and SCE ALs

GRID and The Pilot Team raised similar issues in their protests. We summarize their issues below. Each issue is followed by a summary of PG&E and SCE’s reply to the issue, if PG&E and/or SCE directly address the specific issue in their joint reply.

PG&E/SCE Proposals Do Not Comply with AB 2672 Affordability Mandate

The Pilot Team and GRID believe that PG&E and SCE proposals do not meet the legislative directive of energy affordability under AB 2672. The Pilot Team states that the statutory language is clear that current energy sources in disadvantaged communities in the San Joaquin Valley are not affordable, and therefore energy savings for participating customers must be more than nominal in order to scale these pilots to the other 170 identified communities. GRID concurs that PG&E and SCE’s goal of bill neutrality does not meet the legislative intent of AB 2672.

The Pilot team also asserts that these pilot communities have faced historical inequity, and it is contrary to legislative intent to protect these communities only in the short-term. The Pilot Team further argues that there should be an element of reparation and restitution to account for 50 years of denial of access to affordable energy in these communities.

PG&E and SCE joint reply:

PG&E and SCE state that they met the intent of AB 2672 with their proposals, and PG&E specifically rejects GRID's assertion that its bill protection proposal does not provide a sufficient level of affordability for participants. PG&E and SCE point to how CARE customers will see an energy cost savings given the proposals are based on the largest electric bill forecasted increase and smallest amount of propane savings. In response to the assertion that pilot communities have faced historical inequity, PG&E references a previously filed response to administrative law judge questions from the SJV proceeding.¹⁵

PG&E/SCE Misinterpret \$500 As Ceiling and Not a Floor, and The Proposed Duration is Not Sufficient

GRID states that PG&E errs in considering \$500 per household as a ceiling instead of a floor, pointing to the language in the SJV Pilots Decision that calls \$500 a "starting point."¹⁶ GRID notes that it is also procedurally possible for PG&E and SCE to request more funding.

GRID and the Pilot Team also assert that PG&E and SCE's proposed three-year bill protection time period is not sufficient. GRID notes that electrification treatments cannot be reversed, and the duration should be at least the expected life of the new appliances. The Pilot team states that a duration shorter than 20 years does not mitigate potential for unintended consequences, such as rebound effect and fluctuations in energy pricing. The Pilot Team also alleges that a three-year duration will inadequately mitigate bill shock.

PG&E and SCE joint reply:

PG&E and SCE seek clarity on the Commission's intent behind stating that \$500 is a "starting point." PG&E and SCE state that the Commission did not clarify

¹⁵ PG&E references reply comments to responses to administrative law judges' questions from August 22, 2018. In these reply comments, PG&E asserts that its involvement in decisions to extend gas pipelines has been undertaken consistent with longstanding Commission-approved tariffs PG&E states that it is not aware of reasons for not extending gas lines other than cost factors and other factors contained in the Commission gas rules and policies or regulations to implement these rules.

¹⁶ The SJV Pilots Decision, page 80.

whether the IOUs should propose amounts outside the authorized budgets, though PG&E and SCE believe that \$500 is adequate in addressing the need to protect against bill shock and address affordability.

Modeling Forecasts Are Highly Speculative

GRID and the Pilot Team repeatedly call attention to the fact that PG&E and SCE proposals are based on energy use forecasts and energy costs that utilize highly speculative and incomplete or anecdotal data. They argue that a large savings buffer must be considered to ensure cost savings given these uncertainties. Some speculative factors they point to in PG&E and SCE's analyses include:

- Uncertainties in current and future energy usage;
- Propane estimates based on small samples from non-pilot proxy communities or gas customers;
- Chance that some participants will not install heat pump space heating, which means these participants may still rely on propane;
- Risk of delay in some participants receiving a 20 percent electric bill discount under the DAC-GT Program or CSGT Program; and
- Single point estimates that do not convey a range of possible savings, compared to a more robust modeling approach.

GRID also asserts that SCE's estimated post-pilot electric usage for heat pump space conditioning is unreasonably low. GRID contends that SCE should at least use PG&E's 3500 kilowatt hour (kWh) per year input, based on the RASS, instead of SCE's 1946 kWh per year input, which GRID states is not clearly cited in SCE's AL.

PG&E and SCE joint reply:

PG&E and SCE state that various parties have delineated the gaps in key data elements, such as pre-pilot non-electric energy costs. PG&E and SCE state that they believe that this deficiency is more reason to carefully observe and collect information, such as the data that will be contained in the quarterly aggregated bill impact reports they are required to file on a quarterly basis.¹⁷ These reports, according to PG&E and SCE, will inform subsequent steps that the Commission should take regarding bill protection.

¹⁷ The SJV Pilots Decision, page 79.

Proposals Do Not Account for Rebound Effect

The Pilot Team and GRID state that the PG&E and SCE's proposals, particularly PGE's, do not sufficiently model rebound effect as required by the Decision. GRID notes that PG&E states that it uses conservative inputs instead of modeling a rebound effect, which GRID declares is not an adequate substitute. The Pilot team states that there is not enough available information to determine how a rebound effect might apply to SJV communities that have been denied access to affordable energy.¹⁸ Given this deficiency, PG&E and SCE should provide as large a savings buffer as possible to avoid underestimating the impact of rebound effect on bill savings.

PG&E and SCE joint reply:

PG&E states that it did not explicitly model rebound effect because it had not identified any research that would support applying a percentage discount across the board. SCE states that it applied a 30 percent increase to its heat pump space conditioning for the entire year after conducting analyses on customers' summer and winter usage differential. PG&E adds that it also increased its heat pump space conditioning usage from its original 2018 proposal by almost 60 percent due to health, safety, and comfort and maintains that it is not necessary to apply an additional incremental rebound effect.

PG&E/SCE's Estimated Cost Savings Are Not Significant Enough

GRID and the Pilot Team assert that the level of projected participant savings is not sufficiently meaningful, and pilot projects must at a minimum provide energy cost savings, not just bill protections. GRID states that PG&E's projected eight percent energy cost savings for median CARE customers and 14 percent energy cost savings for median non-CARE customers, for example, is not likely to make a meaningful difference in the level of affordability for participants.¹⁹ GRID also notes that these energy cost savings projections apply to the median

¹⁸ Parties to the SJV proceeding generally agree that there are few studies available that analyze the rebound effect of fuel substitution (i.e. replacing propane or wood-burning fuel with electric appliances), while there is a broader body of research on rebound effect of energy efficiency upgrades.

¹⁹ GRID supplemented PG&E's analysis in its AL to arrive at these savings projections. In its reply, PG&E points out that GRID made a math error and states that the 14 percent median non-CARE savings should be seven percent.

customer, and thus, savings are projected to be lower for many participants. GRID continues to state that any risk of a bill increase for any customer in a statistically reasonable distribution of customer energy users is unacceptable. The Pilot Team further states that bill savings should be at least as low as the natural gas rate.

PG&E and SCE joint reply:

PG&E and SCE state that they agree with the Pilot Team that pilot projects must provide participants with energy cost savings, not just bill neutrality. PG&E and SCE believe their level of forecasted savings meet the intent of AB 2672.

PG&E/SCE Proposals Could Discourage Pilot Participation

GRID and the Pilot Team express concern that PG&E and SCE's proposals could discourage pilot participation, because they do not provide sufficient guarantee of energy cost savings, which would compromise the success of the pilots and future scalability to other disadvantaged SJV communities. The Pilot Team states that if pilots fail to deliver on the promise to community members to lower energy costs, participants will lose trust in the pilots, which will lead to decreased participation and reduced cooperation with data gathering efforts. GRID further asserts that under PG&E and SCE's proposals, the most vulnerable customers will be the least likely to take on the risk of signing up for the pilots, leading to the perverse outcome where customers with the greatest need for affordable energy refuse to participate.

PG&E and SCE joint reply:

PG&E and SCE did not respond to this issue in their joint reply.

CalPA, TURN, and CforAT Protests to PG&E and SCE ALs

CalPA Protest

CalPA states that the IOU proposals do not adequately prevent all customers from bill shock. In order to be compliant with the SJV Pilots Decision, CalPA believes that a bill protection mechanism must protect all pilot participants against energy cost increases. For a bill protection mechanism to meet this requirement, it should allow for flexibility in allocating budget amounts and the credit should be linked to the customer's individual circumstances or needs, similar to the mechanism adopted for the default time-of-use (TOU) pilot programs.

CalPA also states that the Commission should reject the IOUs' proposals because SJV Pilots Decision does not authorize a new bill credit as part of the pilot projects, according to its interpretation. CalPA asserts that during Phase II of R.15-03-010, parties raised bill credits as an affordable energy option, but since the Commission did not evaluate bill credits as an option, it would be improper to implement a bill protection mechanism with an unauthorized bill credit.

PG&E & SCE joint reply:

PG&E and SCE reject CalPA's argument that the SJV Pilots Decision did not authorize a bill credit, underscoring that bill protections functions as a small part of the electrification pilot and its overall budget. PG&E rejects CalPA's argument that PG&E's proposal does not adequately protect all customers, stating that the 1.4 percent of non-CARE customers that would experience energy cost increases are outliers.

TURN Protest

TURN supports PG&E and SCE's proposals, but similar to GRID and the Pilot Team, it is concerned that the proposals do not comprehensively address the Commission's directives to consider all pre- and post- pilot implementation energy costs and rebound effects. TURN stresses the importance of collecting data going forward given uncertainties in existing data.

PG&E and SCE joint reply:

PG&E states that it did not explicitly model rebound effect because it had not identified any research that would support applying a percentage discount across the board. SCE states that it applied a 30 percent increase to its heat pump space conditioning for the entire year after conducting analyses on customers' summer and winter usage differential. PG&E adds that it also increased its heat pump space conditioning usage from its original 2018 proposal by almost 60 percent due to health, safety, and comfort, and it maintains that it is not necessary to apply an additional incremental rebound effect.

CforAT Protest

CforAT does not oppose PG&E and SCE's proposals, but states that PG&E and SCE should articulate their efforts to enroll eligible customers in Medical Baseline as well as programs like CARE in these ALs. CforAT asks that PG&E and SCE clarify how they intend to implement affordable payment plans for customers in arrears, and to state they will not force customers into limited

options for payment plans as a condition to participating in the pilots. CforAT respectfully requests that the Commission delay approval of PG&E and SCE's ALs until PG&E and SCE articulate how they will address disconnections, arrearages, and enrollment in Medical Baseline for SJV pilot participants.

PG&E reply:

PG&E states that it appreciates CforAT's concerns about disconnections and arrearages. In addition to the standard four-month pay plan, PG&E states it may offer a longer duration payment plan tailored to a participant's need, and PG&E points out that its implementation plan includes a plan to educate and enroll participants on medical baseline rates.

CalPA and the Pilot Team Protests to SoCalGas AL

CalPA Protest

CalPA's protest is identical to its protest to PG&E and SCE, which is described above.

SoCalGas' reply:

SoCalGas states that it proposed a bill protection method that minimizes administrative barriers and undue burden for pilot participants while providing reliable protection against energy cost increases, as required by the SJV Pilots Decision. It also states that the proposal is consistent with PG&E and SCE's proposals and consistent with the Pilot Team's bill protection workshop recommendation to use a methodology that is customer-specific, occurs monthly, and is easy for participants to understand.

The Pilot Team's Protest

The Pilot Team's protest to SoCalGas is nearly identical to its protest to PG&E and SCE (described above), with one distinguishing point. The Pilot Team contends that SoCalGas overestimated its baseline propane bills by using current customers' natural gas usage to calculate current propane usage. According to the Pilot Team, this approach likely overestimates customers' propane bills and therefore savings, because natural gas is significantly cheaper than propane and will be used at a higher rate.

SoCalGas' reply:

SoCalGas disagrees with the Pilot Team's assertion that propane costs are unreliable because they are based on natural gas rates, pointing to a description of its methodology. SoCalGas also states that it believes the Pilot Team's interpretation of \$500 per household budget as a floor is incorrect, since the Decision says that the Commission approves "up to \$500" in costs for each household.²⁰ SoCalGas further contends that its proposed three-year duration is consistent with the Decision's authorization for utilities to recover non-leveraged costs of pilot projects over three years.

GRID's Alternative SJV Pilot Bill Protection Proposal

GRID submitted an alternative bill protection proposal in its protest to PG&E and SCE's ALs. The Pilot Team expressed support for GRID's bill protection proposal in its protest. For ease of comparison, we summarize GRID's proposal below using the same categories as those used to describe the IOUs' bill protection proposals in the background section of this Resolution. A summary of PG&E and SCE's reply to GRID's proposal follows.

Bill Protection Mechanism

GRID proposes a 20 percent monthly electricity bill discount for all electrified pilot participants over a 20-year period.

The 20 percent bill protection discount would be in addition to CARE/FERA discounts for eligible customers and a 20 percent DAC-GT or CSGT community solar discount for all pilot customers. The proposed additional 20 percent bill protection discount would be disbursed to participating customers on monthly bills.

Modeling Approach

GRID took the following modeling approach:

- Determined pre-pilot electric usage for 25th percentile, median and 75th percentile cases, based on a PG&E data request.
- Added constant propane costs, which varied by community and ranged between \$1297 and \$1373 annually.
- Reduced pre-pilot loads by three percent to account for energy efficiency.

²⁰ The SJV Pilots Decision, page 80.

- Estimated added electric loads based primarily on RASS, per the table below. The space conditioning load was adjusted based on regional trends.

Heat pump space conditioning	Heat pump water heater	Heat pump dryer	Electric cooktop oven
5084 kWh/yr	1004 kWh/yr	719 kWh/yr	310 kWh/yr

- For rebound effect, added an additional 30 percent for space conditioning usage per year based on SCE's methodology from its 2018 pilot proposal. This brought the heat pump space conditioning usage to 6,609 kWh/yr.
- Calculated post-pilot electric bills based on added load, after placing customers on EL-1 CARE or E-1 tiered all electric-baseline rates.
- Applied 20 percent DAC-GT or CSGT community solar discount; and
- Applied proposed 20 percent bill protection discount.

Estimated Energy Cost Savings for CARE and non-CARE Customers

These energy cost savings estimates are based on the modeling described in the above section. For these estimates, GRID used electricity bill and usage data from five pilot communities in PG&E territory.

CARE Customer Energy Cost Savings Estimates

	Annual energy cost savings (compared to pre-pilot costs)	Percentage reduction in pre-pilot to post-pilot energy costs
25 th percentile usage customer	\$733	35 percent
Median usage customer	\$830	35 percent
75 th percentile usage customer	\$975	36 percent

Non-CARE Customer Energy Cost Savings Estimates

	Annual energy cost savings (compared to pre-pilot costs)	Percentage reduction in pre-pilot to post-pilot energy costs
25 th percentile usage customer	\$288	13 percent
Median usage customer	\$518	18 percent
75 th percentile usage customer	\$835	22 percent

Implementation Recommendations

GRID proposes that all pilot customers, regardless of income, should immediately receive a 20 percent CSGT or DAC-GT discount as soon as the bill protection approach is adopted.

To meet this objective, GRID states that 1) the CSGT program should be required for all communities, and 2) PG&E and SCE should be required to provide a DAC-GT 20 percent discount (or other 20 percent discount) to all participants if the CSGT is not yet available.

PG&E and SCE joint reply to GRID's bill protection proposal:

PG&E and SCE reject GRID's bill protection proposal to provide a 20 percent discount to pilot participants for 20 years. PG&E and SCE state that this proposal is premature without proper data collection and analysis. They argue that the approach fails to consider the intent of AB 2672, costs and impacts on ratepayers, and the life of the appliance measures.

In terms of costs and impacts to ratepayers, PG&E and SCE argue that GRID and the Pilot Team's proposal is cost-ineffective and unnecessary, and it would cost ratepayers between \$5.3 and \$12.4 million overall, or approximately 14 times the approved \$500 per household.

PG&E and SCE reject GRID's recommendation that all customers should immediately receive a 20 percent CSGT or DAC-GT discount. They state that GRID should seek a Petition for Modification (PFM) to the SJV Pilots Decisions since a protest is an inappropriate venue to modify the CSGT and DAC-GT program rules and requirements.

CalPA's Alternative SJV Pilot Bill Protection Proposal

CalPA also submitted an alternative bill protection proposal in its protest to PG&E, SCE, and SoCalGas' ALs, summarized below. A summary of PG&E, SCE, and SoCalGas' reply to CalPA's proposal follows.

Bill Protection Mechanism

CalPA proposes to flexibly allocate \$500 per household based on need and actual energy cost increases. According to CalPA, this approach would ensure that the total amount paid by the participating customer does not exceed the amount they would have paid had the customer not participated in the pilot.

Under CalPA's proposal, the IOUs would use pre-pilot customer electric bill data plus an average estimate for propane and wood costs as a baseline.²¹ Any increase in energy costs above the annual baseline would be credited back to participating customer at the end of the year.

CalPA summarizes their proposed approach with this formula:

Baseline energy costs = $A+B+C$

A= pre-pilot actual electric bills

B= estimated propane costs

C= estimated wood costs

Post pilot costs= D

D= actual post-pilot electric costs

Bill protection mechanism is triggered if: $D > (A+B+C)$

Customer would receive rebate equal to: $(D-(A+B+C))$

Modeling Approach

CalPA does not conduct any modeling to estimate energy cost savings.

Estimated Energy Cost Savings for CARE and non-CARE Customers

CalPA does not provide estimated energy cost savings.

Implementation Recommendations

CalPA does not discuss any further implementation recommendations.

PG&E and SCE joint reply to CalPA's bill protection proposal:

PG&E and SCE reject CalPA's bill protection proposal. They note that the Pilot Team stated at the bill protections workshop that this type of customer-specific approach may be difficult for participants to understand. PG&E and SCE believe their proposal strikes a better balance, and that CalPA's rebate-style program is

²¹ CalPA adds that where feasible, baseline energy costs and post-implementation energy costs should be weather normalized to be comparable.

not compliant with Commission's directive to provide upfront monthly credits to customers.

SoCalGas reply to CalPA's bill protection proposal:

SoCalGas argues that CalPA's proposal for a bill protection mechanism is inconsistent with the SJV Pilots Decision. It states that CalPA's proposal does not comply with the SJV Pilots Decision's requirement to provide monthly bill protection and to avoid monthly bill shock, since it only provides annual bill protection payments that could burden households with high winter or summer bills. It further states CalPA's proposal is inconsistent with the SJV Pilots Decision's directive to minimize administrative barriers and undue burden for pilot participants.

DISCUSSION

This discussion section takes on the following format. The Commission first discusses elements of the party proposals that are described in the background and protest sections of this Resolution. Then the Commission lays out its own bill protection mechanism, directs PG&E and SCE to adopt this approach, and addresses implementation issues. Finally, the Commission approves SoCalGas' bill protection proposal as submitted in its advice letter.

Discussion of IOU and Party Bill Protection Proposals, Authorization and Implementation of a Bill Protection Mechanism for PG&E and SCE Pilots, and Approval of SoCalGas Advice Letter 5439-G

i. Discussion of IOU and Party Bill Protection Proposals

Section 11.2 of the SJV Pilots Decision states that ensuring that participating households experience energy cost savings is a central objective of the pilot. Parties interpret this statement differently for purposes of informing their proposals. The IOUs interpret energy cost savings to mean that all pilot participants experience *some degree* of energy cost savings between pre-pilot and post-pilot energy cost savings. In other words, the IOUs aim to ensure that, at a minimum, the vast majority of participants will not experience any energy cost increase above what their total energy costs were pre-pilot. CalPA's interpretation is consistent with the IOUs' interpretation.

GRID and the Pilot Team believe that participants must receive significant energy cost savings that go beyond nominal savings in order to meet the legislative directive of energy affordability under AB 2672. GRID states that participants should experience a *meaningful degree* of cost savings, which it defines as roughly over 30 percent savings for CARE customers below what their energy costs were pre-pilot and roughly over 10 percent savings for non-CARE customers.

The Commission clarifies here that the objective of the bill protection mechanism is to ensure that, at a minimum, no customer participating in an SJV pilot will experience an increase in their total energy costs above what their total energy costs were in the year before they participated in the pilot. Section 11.2 of the SJV Pilots Decision clearly states that a central objective of the pilots is to ensure that energy cost savings consider all pre- and post- pilot energy costs, including propane and wood costs to the extent feasible, as well as electric and natural gas bills. Section 11.2 does not state that energy cost savings must provide a specific level of cost savings beyond a basic reduction in energy costs pre- and post-pilot. We review the bill protection proposals through this lens.

In their bill protection proposals, PG&E, SCE and GRID conduct modeling in an attempt to demonstrate whether, and to what degree, participating households will save on energy costs after participating in an electrification pilot. The Commission concurs with GRID that inputs to all these models are uncertain for a number of reasons, resulting in a wide range of cost savings estimates depending on the model. We list here some of these factors, which is not an exhaustive list:

- Propane estimates are either based on small samples of customers from non-pilot communities or are anecdotal (propane estimates range from \$500 to \$1373 annually);
- Future energy usage is uncertain because parties rely on a data source from 10 years ago and interpret the data differently (e.g., the heat pump space conditioning usage estimate ranges from 1946 kWh/year to 6609 kWh/year);
- There is general consensus that no reliable data source exists to measure rebound effect for households substituting electric appliances for propane or wood-burning fuel, and no consistent approach is used;
- Future electricity rates are uncertain, which would alter the modeling results;

- Some participants may switch to a time-of-use rate in order to enroll in a program for energy storage in SJV communities,²² or for their own household reasons, and all the models assume customers are on tiered rates;
- The impact of energy efficiency measures is uncertain due to the variety of building envelopes and housing stock quality (only GRID included energy efficiency in its model); and
- It is unclear how many participants will install all four electric appliances, and all models assume full electrification.

Taken as a whole, these uncertainties indicate that the results of these models should be considered speculative, and we caution against drawing any firm conclusions based on any particular modeling approach. Further, we agree with GRID that the single-point energy cost saving estimates provided by PG&E and SCE create a false sense of precision. While PG&E projects that its median non-CARE customer will save \$221 annually, half of PG&E's non-CARE participants are projected to save less, to provide just one example. PG&E and SCE do not convey the range of modeled savings in their advice letters.

With the caveat that all model results are speculative, we find that GRID's proposal is the only electrification pilot bill protection proposal that persuasively builds the case that all participating customers would experience some degree of cost savings. Under PG&E's proposed approach, the worst-case CARE participant is projected to experience a \$16 total energy cost annual increase, and 1.4 percent of non-CARE customers are projected to experience energy cost increases after the \$500 credit expires. SCE's advice letter implies that all participants would save in year four of the pilot onward, but we are not convinced, particularly since its heat pump space conditioning usage input is considerably lower than PG&E's, and it is not properly cited (see footnote 13).

In terms of CalPA's proposed bill protection mechanism, the Commission agrees with the IOUs that this proposal should be rejected on two grounds. One, the proposed mechanism does not incorporate monthly bill protection and does not

²² See Decision (D.)19-09-027 here:

<http://docs.cpuc.ca.gov/SearchRes.aspx?docformat=ALL&DocID=313975481>

avoid monthly bill shock, as required by the SJV Pilots Decision. Two, it is likely that participants would find it difficult to understand, which could diminish enrollment in the pilots and impede data collection efforts to scale pilot learnings to other communities.

ii. **10-Year Authorized Bill Protection Mechanism for PG&E and SCE Electrification Pilots**

After reviewing the bill protection proposals and PG&E and SCE's responses to an Energy Division data request, the Commission authorizes the following 10-year bill protection mechanism for electrification pilots in PG&E and SCE service territories. PG&E and SCE are directed to:

- Provide a 20 percent bill protection discount to all electrification pilot participants on their monthly electricity bills for a five-year period after the first electric appliance is installed in a participant's home;
- Conduct an evaluation of pilot participants' total energy costs savings beginning three years after the first pilot participant receives a bill protection discount; this evaluation will analyze total energy costs for all pilot participants who have received at least 24 consecutive months of electricity bills with a bill protection discount, and it will be based on collected and modeled propane data and actual customer electricity costs pre-pilot and post-pilot;
- If evaluation finds that all participants in the evaluation study, except quantitatively-measurable statistical outliers, experience energy costs savings (i.e., total energy costs have not increased), PG&E and SCE shall reduce the monthly electricity bill discount to a 10 percent discount to all electrification pilot participants on their monthly electricity bills for an additional five years; and
- If the evaluation finds that any participants in the evaluation study, except quantitatively-measurable statistical outliers, experience an energy cost increase, PG&E and SCE shall continue to provide a 20 percent discount to all electrification pilot participants on their monthly electricity bills for an additional five years.

The 20 percent and 10 percent bill protection discounts described above are to be in addition to CARE and FERA discounts for eligible customers who choose to

participate, and in addition to a 20 percent community solar discount for DAC-GT and CSGT for eligible customers who choose to participate.²³ Below is an example of the discounts a pilot participant will be eligible to receive on a monthly electricity bill under the authorized pilot bill protection mechanism.

Table 1: Example of Electricity Bill Discounts Pilot Participant Eligible to Receive

Year 1-5 of Participation in the Pilot

<i>Discount Provided</i>	<i>Amount Provided</i>
CARE discount (if eligible)	36 percent (PG&E) or 32.5 percent (SCE)
FERA discount (if eligible)	18 percent
DAC-GT or CSGT discount (if eligible)	20 percent
SJV Pilots Bill Protection Discount	20 percent

Year 6-10 of Participation in the Pilot

<i>Discount Provided</i>	<i>Amount Provided</i>
CARE discount (if eligible)	36 percent (PG&E) or 32.5 percent (SCE)
FERA discount (if eligible)	18 percent
DAC-GT or CSGT discount (if eligible)	20 percent
SJV Pilots Bill Protection Discount	10 percent if evaluation finds no energy cost increase for any participating customer except statistical outliers; ...or 20 percent if evaluation finds energy cost increases for any participating customer except statistical outliers

²³If neither the CSGT nor DAC-GT program is available at the time the customer receives the first bill protection discount, or if DAC-GT is available but a customer is not eligible, we direct PG&E and SCE to apply a 20 percent transitional community solar bill credit to the customer's monthly bill. This mechanism is explained in the implementation section further below.

PG&E and SCE shall stack these discounts sequentially based on the size of the discount, with the largest discount being applied first, and smallest discount being applied last. Below we provide a simplified example of an electricity bill for a PG&E customer enrolled in the CARE program, the DAC-GT program, and the first year of the SJV pilot program in order to illustrate the order and manner in which these discounts shall be applied.

Table 2: Example of Electricity Bill for PG&E Customer Enrolled in CARE, DAC-GT, and SJV Pilot Programs

Electricity bill based on electricity consumption on all-electric baseline	\$100
Electricity bill after 36 percent CARE discount applied	\$64
Electricity bill after 20 percent DAC-GT discount applied	\$51.20
Electricity bill after 20 percent SJV Pilots Bill Protection Discount applied	\$40.96

Below we discuss our rationale for selecting this bill protection approach, establish requirements for the evaluation, and address implementation issues, including the authorization of a transitional community solar discount.

20 Percent Discount Mechanism

PG&E and SCE propose a \$500 credit because the SJV Pilots Decision states that \$500 per household shall be used as a “starting point” with cost recovery authorized up to that amount. Below is a table that shows the bill protection costs previously authorized in the SJV Pilots Decision.

Table 3: Previously Authorized Bill Protection Costs per SJV Pilots Decision (D.)18-12-015 (in thousands of dollars)

Utility Territory	Number of authorized pilot households	Previously authorized bill protection funding per household	Total previously authorized bill protection costs ²⁴
PG&E territory	1,218	\$0.5	\$662
SCE territory	449	\$0.5	\$224.5
Total	1,667	<i>n/a</i>	\$886.5

We disagree with PG&E and SCE's interpretation of the SJV Pilot Decision's starting point language as effectively establishing a cost ceiling. A starting point is a guidepost for initiating data-driven analysis; it is not a cap, especially since procedural pathways exist to increase cost recovery for bill protections. If the central objective of the bill protection mechanism is to ensure energy cost savings, we agree with GRID and the Pilot Team that a greater savings cushion is needed to account for modeling uncertainties.

We also agree with GRID that a percentage discount approach is preferred to the IOUs' flat credit approach during this pilot phase, since a percentage discount approach scales to the size of a customer's electricity bill and particular household needs, rather than PG&E and SCE's proposal which provides the same credit regardless of household energy use.²⁵ Because this is a pilot project, a 20 percent bill protection discount for pilot customers is reasonable to both provide a cost savings buffer to account for modeling uncertainties and to scale to a customer's unique energy usage patterns and accommodate individual household needs.

²⁴ For their bill protection proposals, PG&E projects bill protection IT costs to be \$100,000 and bill protection credit processing costs to be \$129,600, and SCE projects bill protection IT costs to be \$50,000 and bill protection credit processing costs to be \$36,000 (see AL 5496-E page 13 and AL 3920-E page 12). PG&E and SCE both state in their ALs that they do not request additional funding beyond previously authorized program budgets in the SJV Pilots Decisions to cover these costs.

²⁵ A percentage discount approach is also consistent with other CPUC billing discount programs like CARE, FERA, CSGT, and DAC-GT.

Although a flat credit approach is appropriate in other circumstances, we prefer a percentage discount approach during the pilot phase because it is important to encourage a sufficient level of participation to collect data that will inform future SJV affordable energy approaches. The approach adopted today should not be interpreted as setting a precedent for Phase III of R.15-03-010.

10-Year Bill Protection Duration

We do not support PG&E and SCE's proposed three-year bill protection duration because there are too many unknowns embedded in the energy cost modeling to be convinced that a three-year protection is adequate. Further, a percentage discount bill protection mechanism for 10 years will likely encourage greater participation in the pilots than a \$500 credit over three years, because it delivers a longer period of energy cost savings; the higher costs this entails is reasonable because these are pilot projects. High levels of pilot participation are essential for collecting data to inform how to scale electrification to other communities in Phase III of the SJV proceeding, as GRID and the Pilot Team point out, and we wish to avoid deterring participation due to concerns about energy cost increases.

However, we disagree with GRID and the Pilot Team that a 20 percent discount is imperative for 20 years. We agree with PG&E and SCE's position that a bill protection approach should last no longer than the life expectancy of the appliances, which according to PG&E is 15 years for a heat pump space conditioning system and 10 years for heat pump water heater.²⁶ Linking the duration of the pilot bill protection discount to the life expectancy of the appliances ensures that participants receive energy cost savings while relying on electrical appliances for heating, cooling and cooking needs.

We also believe that a bill protection mechanism should be balanced with bill impacts to non-participating ratepayers. Below is a table that shows projected total costs impacts of the bill protection mechanism authorized in this Resolution compared to GRID's proposed bill protection mechanism, based on an Energy Division data request to PG&E and SCE.²⁷

²⁶ See PG&E's reply comments, pages 10 and 11.

²⁷ PG&E and SCE base their analysis on a weighted average of CARE and non-CARE eligible customers in each pilot community.

Table 4: Comparison of Projected Total Bill Protection Discount Costs for Bill Protection Mechanism Authorized in this Resolution versus GRID's Proposed Bill Protection Mechanism (in thousands of dollars)

Utility Territory	20 percent discount for five years, stepped down to 10 percent for five years	20 percent discount for 10 years	20 percent discount for 20 years
PG&E territory	\$3,654	\$4,872	\$9,744
SCE territory	\$923	\$1,231	\$2,462
Total	\$4,577	\$6,103	\$12,206
Total Incremental Costs <i>(over previously authorized costs in table 3)</i>	\$3,691	\$5,216	\$11,319

As seen in the table above, the authorized bill protection mechanism as set forth in this Resolution is projected to cost ratepayers approximately \$5.2 million in incremental costs if the 20 percent discount stays in place for 10 years and approximately \$3.7 million in incremental costs if the 20 percent bill discount steps down to a 10 percent bill discount after year five. GRID's proposal is projected to cost ratepayers approximately \$11.3 million in incremental costs.

To provide a sense of scale, below is table that displays the projected increase in total costs for the SJV pilots across PG&E and SCE territories, depending on the bill protection mechanism.

Table 5: Projected Increase in SJV Pilot Program Costs in PG&E and SCE Territory by Bill Protection Mechanism (in thousands of dollars)

Bill protection mechanism	Incremental bill protection cost	Total PG&E and SCE territory pilot program costs authorized in SJV Pilots Decision	Total PG&E and SCE territory pilot program costs including incremental bill protection cost	Percentage increase in total pilot program costs
	(a)	(b)	(c)	(d)

			(a+b=c)	(c/b-1)
20 percent discount for five years, stepped down to 10 percent for five years	\$3,691	\$50,822	\$54,512	7.3 percent
20 percent discount for 10 years	\$5,216	\$50,822	\$56,038	10.3 percent
20 percent discount for 20 years	\$11,319	\$50,822	\$62,141	22.3 percent

As seen in the table above, the Commission's bill protection mechanism authorized in this Resolution is projected to increase overall SJV pilot program budgets by approximately 7 to 10 percent, while GRID's proposal is projected to increase budgets by approximately 22 percent. Though we caution against interpreting these estimates too strictly, we find that a bill protection mechanism that increases overall pilot costs by approximately 7 to 10 percent is reasonable given the importance of ensuring high levels of participation in the pilot to gather data to inform future decision making in this proceeding.

Stepping Down 20 Percent Discount to 10 Percent After Five Years

The Commission concludes that a percentage discount approach should be stepped down over time, assuming that all participants are experiencing cost savings. Stepping down the discount from 20 percent to 10 percent avoids a subsidy cliff for participants, which allows them to adjust electricity usage behavior more gradually. It also decreases costs to other ratepayers. According to the data request to PG&E and SCE captured Table 4, stepping down the discount from 20 percent to 10 percent after five years, versus keeping the discount at 20 percent for 10 years, would result in approximately \$1.5 million in total ratepayer savings for the SJV pilots.

Stepping down the 20 percent discount after five years, versus a shorter time frame, also allows PG&E and SCE to conduct a robust, multi-year evaluation of energy cost savings based on actual post-pilot electricity bills and voluntarily

submitted propane bills.²⁸ The Commission considered alternative step-down approaches, including stepping down the discount from 20 percent to 15 percent to 10 percent to 5 percent, but on balance found that a 20 percent to 10 percent step-down was more administratively efficient, simpler to explain to customers interested in enrolling in the pilots, and similar in cost impact. The 20 percent to 10 percent step-down approach also aligns with the SJV Pilot's Decision directive to minimize administrative barriers.

Bill Protection Evaluation After Three Years

PG&E and SCE's evaluation of energy cost savings shall commence three years after the first pilot household in its territory receives its first monthly bill with a 20 percent bill protection discount. The evaluation of energy cost savings associated with the bill protection mechanism shall generally consist of the following:

- The evaluation will analyze total energy costs for all pilot participants who have received at least 24 consecutive months of electricity bills with a bill protection discount prior to the advice letter filing date;
- The pre-pilot energy costs will be based on propane bills voluntarily submitted by participants and 12 months of actual pre-pilot electricity bills; and
- The post-pilot energy costs will be based on 24 consecutive months of actual post-pilot electricity bills, annualized to compare to pre-pilot total energy costs.

PG&E and SCE shall each submit Tier 2 advice letters with this energy cost saving analysis to the Energy Division no later than three years and six months after the utility's first pilot household receives its first monthly electricity bill with a bill protection discount. The advice letters shall, at a minimum:

- Analyze collected propane bill data and clearly explain any propane modeling included in the pre-pilot cost analysis;

²⁸ Per the SJV Pilots Decision, propane bills are to be collected from SJV residents on a voluntary basis only, and not as a precondition for pilot participation. See page 73 of the SJV Pilots Decision.

- Reference anonymized and aggregated post-pilot electricity bill data, using as much bill data that is available at the time of the advice letter filing;
- Discuss any trends that indicate that energy cost savings increase over time as customers acclimate to new appliances;
- Analyze whether, and to what degree, participants experience lower energy cost savings if they do not install both a heat pump space conditioning unit and heat pump water heater, and include propane usage in post-pilot costs if applicable;
- Include a detailed explanation of the quantitative analysis used to determine statistical outliers;
- Include any qualitative justification for why any participants are considered outliers, along with a description of the steps taken to help these participants reduce their energy costs; and
- Request that the trigger for the 10 percent discount go into effect if data shows that all participants in the evaluation study except statistical outliers have reduced pre-pilot to post-pilot energy costs; or request that the 20 percent discount be kept in place if data does not demonstrate that all participants in the evaluation study except statistical outliers have reduced pre-pilot to post-pilot energy costs.

We also direct PG&E and SCE to each send the Energy Division a confidential, securely transmitted dataset with all participating pilot customers' actual monthly electricity bill total costs at the same time the advice letters are filed. This dataset will include at least 12 months of pre-pilot electricity bill data for all pilot participants in the evaluation study (including statistical outliers) and all post-pilot monthly electricity bill data available at the time of advice letter filing.

iii. Implementation of Authorized Bill Protection Mechanism for PG&E and SCE Pilots

Electrification Appliance Requirements

PG&E and SCE request that the Commission require that pilot participants install both the heat pump space conditioning and heat pump water heater in order to participate in the pilots. The Commission reviewed party comments on the topic

of partial or full electrification in the SJV Pilots Decision and authorized pilot administrators the flexibility to not install heat pump space heating in some homes.²⁹ This Resolution is not the appropriate venue to seek a modification of that determination. However, we recognize that participants' total energy cost savings may be impacted by which appliances are installed in the participants' homes. In the bill protection evaluation, we require PG&E and SCE to analyze whether, and to what degree, participants experience lower energy cost savings if they do not install both a heat pump space conditioning unit and a heat pump water heater.

Bill Protection Discount Trigger

GRID requests that the Commission require that PG&E and SCE include a bill protection discount on participants' electricity bills as soon as a customer is enrolled in the pilot and prior to the installation of any appliance. By contrast, PG&E and SCE request that the bill protection mechanism go into effect after the first electric appliance is installed. We agree with PG&E and SCE that the bill protection discount should be triggered as soon as the first electric appliance is installed. Section 11.2 of the SJV Pilots Decision states that the IOUs must ensure energy cost savings for all households *receiving appliance upgrades* as part of the pilot program [italics added]. A customer that enrolls in the pilot may not end up receiving an appliance upgrade for various reasons. To comply with this language in Section 11.2 of the SJV Pilots Decision, we require PG&E and SCE to provide a 20 percent discount on each participating customer's monthly electric bill beginning on the first monthly electric bill that is issued after the first electric appliance is installed at the participant's home as part of the pilot.

Transitional Community Solar Discount

GRID raises the concern in its protest that the Community Solar Green Tariff (CSGT) and Disadvantaged Community Green Tariff (DAC-GT) programs may not be available to participants upon enrollment in the pilots, due to potential misalignment in program start dates. GRID's energy cost saving model shows that the median non-CARE customer will pay roughly \$80 more per year (a three percent energy cost increase post-pilot compared to pre-pilot) if the 20 percent

²⁹ The SJV Pilots Decision, page 89.

CSGT or DAC-GT discount is not available.³⁰ PG&E and SCE's modeling all assume that pilot participants receive a 20 percent CSGT or DAC-GT discount, and their advice letters do not address a gap in community solar program availability.

The SJV Pilots Decision directs PG&E and SCE to solicit CSGT projects to serve all of the pilot communities they administer, with the exception of California City, which may be served by CSGT or DAC-GT. The SJV Pilots Decision authorizes a limited exemption to the CSGT program rule that requires CSGT projects to be located within five miles from participating communities; CSGT projects serving SJV pilots may be located up to 40 miles from participating pilot communities. The Decision also directs PG&E to enroll all eligible residents onto the DAC-GT program until the CSGT projects are built. GRID points out that since DAC-GT is income-restricted, it would not apply to non-CARE participants.

It is possible that CSGT and DAC-GT may not yet be available to SJV pilot participants at the time their first appliance is installed and the bill protection discount is triggered. According to PG&E and SCE implementation plans, the earliest the first pilot participants are likely to receive appliances is approximately mid-2020.³¹ PG&E and SCE do not currently have existing projects that meet the eligibility criteria for CSGT, and based on the forecasted CSGT solicitation and project development timelines, the Commission does not anticipate pilot customers being able to receive a CSGT discount on their bills until approximately mid-2021.

In terms of DAC-GT availability, PG&E stated in its net energy metering (NEM) disadvantaged community implementation advice letter (AL 5362-E-A) that it plans to use an interim pool of existing solar resources that meet all of the DAC-GT program requirements to expedite the delivery of program benefits to eligible customers. Resolution E-4999, which approved PG&E's and SCE's NEM

³⁰ GRID's model assumes a 20 percent bill protection discount is applied.

³¹ PG&E and SCE projected that the first installs would occur in Q1 2020 in SJV pilot implementation AL 5498-E and AL 3971-E, respectively, which were filed on March 19, 2019. These ALs were approved by the Energy Division on October 29, 2019, which puts PG&E and SCE on a timeline to conduct the first pilot installations around the summer of 2020 at the earliest.

disadvantaged community advice letters, authorized, but did not require, PG&E and SCE to serve DAC-GT customers using eligible, existing resources.³²

Given these uncertainties, we find it prudent to require PG&E and SCE to provide one of the following discounts to every SJV pilot participant when the participant receives the first monthly bill protection discount: either a 20 percent CSGT discount to eligible customers; a 20 percent DAC-GT discount to eligible customers; or a 20 percent transitional community solar discount.

We find that it is reasonable for PG&E and SCE to provide a transitional community solar discount to SJV pilot customers if CSGT and DAC-GT are both unavailable, or DAC-GT is available but the customer is not eligible, in order to mitigate the increased likelihood that the pilot customer will not save on their overall energy costs. All parties' bill protection energy cost saving models show that the absence of a 20 percent CSGT or DAC-GT discount puts some pilot customers at greater risk for paying more on their energy costs post-pilot compared to pre-pilot.

If a customer receives a transitional 20 percent community solar discount, it shall be included on the pilot participant's electricity bill starting the same month that the 20 percent bill protection discount is triggered. PG&E and SCE are directed to transition the customers to the DAC-GT program or CSGT program when and if those programs become available to each community, and as applicable based on the customer's eligibility for each program.

If the CSGT or DAC-GT programs never become available for any given participant during the bill protection period (i.e., 10 years from the first month the bill protection discount goes into effect), or if DAC-GT becomes available but the customer is not eligible, PG&E and SCE are directed to provide the transitional 20 percent community solar discount for the pilot customer for the 10-year duration of the bill protection period. The funding recommendation for the transitional community solar discounts is discussed in the next section.

³² In its comments to draft resolution E-4999, SCE requested until 2021 to implement DAC-GT.

Funding Recommendation for PG&E and SCE Bill Protection and Transitional Community Solar Discounts

The SJV Pilots Decision stated that it would be premature to approve any bill protection proposals that were submitted leading up to the Decision's issuance because it was not clear which approach, if any, was the best given the amount of information available at that time. The SJV Pilots Decision instead stated that the topic of bill protections would benefit from an in-depth workshop discussion in order to ensure that some level of bill protection costs was accounted for in the pilot budgets.³³ The SJV Pilots Decision authorized up to \$500 per participating household that receives appliance upgrades and identified the \$500 as a starting point for the possible per household costs.³⁴ At \$500 per household, the total bill protection authorization per the SJV Pilots Decision is \$662,000 for pilots in PG&E territory and \$224,500 for pilots in SCE territory.

The SJV Pilots Decision directed PG&E, SCE and SoCalGas to host a workshop and to present proposed bill protection approaches explaining the data, modeling, and assumptions used to develop these proposals within 45 days of the issuance of the decision. PG&E, SCE, and SoCalGas hosted a workshop on February 1, 2019, during which the IOUs and other stakeholders presented bill protection proposals and feedback was exchanged. The IOUs hosted a follow-up workshop on February 25, 2019 to further solicit feedback and refine proposals and analysis.

Since the SJV Pilots Decision was issued, parties have conducted extensive analysis on the topic of bill protections for SJV pilot customers pursuant to the decision. This analysis has informed the authorized bill protection mechanism authorized in this Resolution. Based on parties' analysis, we have a good sense of the total costs of a bill protections approach that will ensure energy cost savings for SJV pilot participants.

We recommend the Commission modify the SJV Pilots Decision to allow PG&E and SCE to recover the costs associated with the bill protection mechanism authorized in this Resolution that exceed the total bill protection funding approved in the SJV Pilots Decision.

³³ The SJV Pilots Decision, page 77.

³⁴ The SJV Pilots Decision, page 80.

At this time, we do not have sufficient data to project the costs associated with transitional community solar discounts for pilot participants. We recommend that the Commission seek party input on this topic. Once we have more information on the record, we recommend that the Commission modify the SJV Pilots Decision to allow PG&E and SCE to recover costs associated with the transitional community solar discounts authorized in this Resolution.

Bill Protection Mechanism to be Linked to Customer of Record

No parties commented on whether a bill protection mechanism should be associated with the customer of record or the meter associated with the house that is receiving the electrification treatment. We clarify here that the bill protection discount, and transitional community solar discount, shall be associated with the customer of record at the time of pilot enrollment. Given that the bill protection mechanism is intended to mitigate potential energy cost increases between a pilot participant's pre-pilot costs and post-pilot costs, it makes sense that the bill protection discount and transitional community solar discount would be linked to the household that incurs these energy costs.

If the customer of record moves out of the home with the electrification treatment during the 10-year bill protection period, the bill protection discount and transitional community solar discount shall be terminated. The new customer of record moving into the house with the electrification treatment shall not receive a bill protection discount or transitional community solar discount.

iv. Approval of SoCalGas Advice Letter 5439-G

The Commission approves SoCalGas's advice letter 5439-G as filed. In SJV proceeding R.15-03-010, there was general consensus among parties that customers would save on pre-pilot to post-pilot energy costs by switching to natural gas from propane and wood-burning fuel. In its protest to SoCalGas' advice letter, the Pilot Team states that the Commission must ensure reasonable bill savings that are at least as low as the natural gas rate. SoCalGas points out in its reply that, in effect, its pilot in California City is doing just that by substituting natural gas for propane and wood-burning fuel sources.

The Pilot Team's Monte Carlo simulation also shows that under the scenario with the lowest propane assumption (in which propane is estimated to be \$500 annually), 95 percent of their 10,000 simulations demonstrate that CARE and non-CARE customers will save on their energy costs.³⁵

Since parties to the SJV proceeding have consistently demonstrated that natural gas is cheaper for customers than propane and wood-burning fuel, we find SoCalGas' proposal to provide a \$500 bill protection discount over three years, sized based on seasonal variation, to be a reasonable method to mitigate monthly bill variance for pilot customers transitioning to natural gas.

COMMENTS

Public Utilities Code section 311(g)(1) provides that this resolution must be served on all parties and subject to at least 30 days public review. Please note that comments are due 20 days from the mailing date of this resolution. Section 311(g)(2) provides that this 30-day review period and 20-day comment period may be reduced or waived upon the stipulation of all parties in the proceeding.

The 30-day review and 20-day comment period for the draft of this resolution was neither waived nor reduced. Accordingly, this draft resolution was mailed to parties for comments, and will be placed on the Commission's agenda no earlier than 30 days from today.

FINDINGS

1. Assembly Bill 2672 (Perea, 2013) required the California Public Utilities Commission (Commission) to initiate a new proceeding to identify disadvantaged communities in the San Joaquin Valley (SJV) based on certain criteria and to analyze the economic feasibility of the following options:
 - Extending natural gas pipelines to those disadvantaged communities;

³⁵ Specifically, the Monte Carlo simulation shows that these CARE customers would save

between 22.4 and 27.4 percent, and non-CARE customers would save between 1.9 and 6.7 percent. See page 9 of the Pilot Team's protest.

- Increasing subsidies for electricity for residential customers in those disadvantaged communities; and
 - Other alternatives that would increase access to affordable energy in those disadvantaged communities that the Commission deems appropriate.
2. Commission Decision (D.)18-12-015 (SJV Pilots Decision), Ordering Paragraph (OP) 15d, directed Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), and Southern California Gas Company (SoCalGas) to file an Advice Letter (AL) that details their planned approaches to ensuring San Joaquin Valley pilot participants' energy cost savings.
 3. To comply with OP 15d, on March 18, 2019 PG&E filed AL 5496-E, SCE filed AL 3970-E, and SoCalGas filed AL 5439-G.
 4. The SJV Pilots Decision discussion on ensuring bill savings and affordability (Section 11.2) does not state that energy cost savings must provide a specific level of cost savings beyond a basic reduction in energy costs pre- and post-pilot.
 5. The objective of the bill protection mechanism is to ensure that, at a minimum, no customer participating in an SJV pilot will experience an increase in their total energy costs above what their total energy costs were in the year before they participated in the pilot.
 6. Inputs to PG&E, SCE, and GRID Alternatives (GRID)'s energy cost saving models for SJV pilot participants are uncertain for a number of reasons. These uncertainties result in a wide range of cost saving estimates depending on the model.
 7. The results of any energy cost saving model for SJV pilot participants are speculative, and no firm conclusions can be drawn based on any particular modeling approach.
 8. PG&E modeling projects that the worst-case California Alternate Rates for Energy (CARE) pilot participant may experience a \$16 total energy cost increase annually and that 1.4 percent of non-CARE customers may experience an energy cost increase annually after the \$500 credit expires.
 9. SCE modeling projects that all participating customers will experience a total energy cost savings post-pilot compared to pre-pilot, but SCE's model uses a heat pump space conditioning usage input that is considerably lower than PG&E's input without sufficiently documenting its rationale for selecting the input.
 10. GRID's energy cost saving modeling of SJV pilot participants is persuasive in demonstrating that all participating pilot customers would experience some

degree of total energy cost savings post-pilot compared to pre-pilot if pilot participants receive a 20 percent bill protection discount on monthly electricity bills.

11. Public Advocates Office (CalPA)'s proposed bill protection mechanism for SJV participants does not incorporate monthly bill protection and does not avoid monthly bill shock, and thus does not meet the requirements of the SJV Pilots Decision.
12. Participants could find it difficult to understand CalPA's proposed bill protection mechanism, which could diminish enrollment and impede data collection efforts to inform scaling pilot learnings to other communities.
13. The SJV Pilots Decision states that \$500 for bill credits per household shall be used as a "starting point" with cost recovery authorized up to that amount.
14. A starting point, in this context, is a guidepost for initiating data-driven analysis; it is not a cap, especially since procedural pathways exist to increase cost recovery for bill protections.
15. Because of modeling uncertainties, bill credits of greater than \$500 per participating household are necessary to ensure that each participating household experiences energy cost savings, a central objective of the SJV pilot.
16. A bill protection mechanism that uses a percentage discount approach scales to the size of a customer's electricity bill and particular household needs and, as a result, is more likely to ensure energy cost savings, whereas a bill protection approach that provides a total \$500 credit to each household over three years does provide sufficient guarantee of energy cost savings.
17. A 20 percent bill protection discount for pilot customers provides a reasonable savings buffer to account for modeling uncertainties and scales to a customer's unique energy usage patterns to accommodate individual household needs.
18. The uncertainties embedded in parties' energy cost saving models preclude the Commission from concluding that a three-year bill protection period is an adequate amount of time to ensure total energy costs savings for all participants.
19. A 10-year percentage discount bill protection mechanism will encourage greater pilot participation than a three year \$500 credit because it offers potential pilot participants a longer period of energy cost savings.
20. Ensuring ample participation in the pilot is essential for collecting sufficient data to inform approaches to scaling electrification to other SJV disadvantaged communities.

21. Linking the duration of the pilot bill protection discount to the life expectancy of the appliances ensures that participants receive energy cost savings while relying on electrical appliances for heating, cooling and cooking needs.
22. It is appropriate for a bill protection approach to last no longer than the life expectancy of the electric appliances being installed, which is reported to be 15 years for a heat pump space conditioning system and 10 years for a heat pump water heater.
23. Modeling results project that the bill protection mechanism authorized in this resolution would cost ratepayers approximately \$5.2 million if the 20 percent discount stays in place for 10 years and would cost approximately \$3.7 million if the 20 percent bill discount steps down to a 10 percent bill discount after year five.
24. Modeling results project that GRID's bill protection proposal to provide a 20 percent monthly bill discount for 20 years is projected to cost ratepayers approximately \$11.3 million.
25. Modeling results project that the bill protection mechanism authorized in this Resolution would increase PG&E's and SCE's combined overall pilot project budgets by approximately 7 to 10 percent, while GRID's proposal would increase the overall budgets by approximately 22 percent.
26. A bill protection mechanism that increases pilot costs by approximately 7 to 10 percent of overall costs approved in the SJV Pilots Decision is reasonable given the importance of ensuring high levels of participation in the pilot in order to gather data to inform future decision making in this proceeding.
27. Stepping down the bill protection discount from 20 percent per billing period after five years to 10 percent per billing period for an additional five years allows pilot participants to adjust electricity usage behavior more gradually than if the 20 percent bill protection discount were to suddenly expire.
28. Modeling forecasts that stepping down a bill protection discount from 20 percent per billing period to 10 percent per billing period after five years, versus keeping the discount at 20 percent per billing period for 10 years, would result in approximately \$1.5 million in total ratepayer savings for the SJV pilots.
29. On balance, a 20 percent to 10 percent step-down approach is more administratively efficient, simpler to explain to customers interested in enrolling in the pilots, and similar in cost impact than other step-down approaches.
30. It is reasonable to step down a percentage bill protection discount over time, assuming that all participants are experiencing cost savings.

31. Stepping down a 20 percent bill protection discount per billing period after five years, versus after a shorter time frame, allows PG&E and SCE to conduct a robust, multi-year evaluation of energy cost savings based on actual post-pilot electricity bills and voluntarily submitted propane bills, which will help determine whether all participants are experiencing energy cost savings.
32. The 20 percent to 10 percent bill protection step-down approach aligns with the SJV Pilot's Decision directive to minimize administrative barriers.
33. The Commission reviewed party comments on the topic of partial or full electrification in the SJV Pilots Decision and authorized pilot administrators the flexibility to not install heat pump space heating in some homes.
34. This Resolution is not the appropriate venue to seek a modification of the requirements of the SJV Decision regarding partial or full electrification.
35. SJV pilot participants' total energy cost savings may be impacted by which appliances are installed in participants' homes.
36. It is reasonable to require PG&E and SCE to analyze whether, and to what degree, participants experience lower energy cost savings if they do not install both a heat pump space conditioning unit and a heat pump water heater in an evaluation of participant total energy cost savings.
37. Section 11.2 of the SJV Pilots Decision states that the investor-owned utilities must ensure energy cost savings for all households receiving appliance upgrades as part of the pilot program.
38. A customer who enrolls in the pilot may not end up receiving an appliance upgrade for various reasons.
39. To ensure discounts go only to customers who receive an appliance, the bill protection discount should be triggered after the first electric appliance is installed to comply with Section 11.2 of the SJV Pilots Decision.
40. The SJV Pilots Decision directs PG&E and SCE to solicit Community Solar Green Tariff (CSGT) program projects to serve all of the pilot communities they administer, with the exception of California City, which may be served by CSGT or the Disadvantaged Community Green Tariff (DAC-GT) program. The Decision also directs PG&E to enroll all eligible residents onto the DAC-GT program until the CSGT projects are built.
41. PG&E and SCE do not currently have existing projects that meet the eligibility criteria for CSGT, and based on the forecasted CSGT solicitation and project development timelines, the Commission does not anticipate pilot customers being able to receive a CSGT discount on their bills until approximately mid-2021.

42. Resolution E-4999, which approved PG&E and SCE's net energy metering (NEM) disadvantaged community advice letters, authorized, but did not require, PG&E and SCE to serve DAC-GT customers using eligible, existing resources.
43. CSGT and DAC-GT may not necessarily be available to SJV pilot participants at the time their first appliance is installed and the authorized bill protection discount from this Resolution goes into effect.
44. All bill protection energy cost saving models show that the absence of a 20 percent CSGT or DAC-GT discount puts some pilot customers at greater risk for paying more on their energy costs post-pilot compared to pre-pilot.
45. It is reasonable for PG&E and SCE to provide a transitional community solar discount to SJV pilot customers if CSGT and DAC-GT are both unavailable, or DAC-GT is available but the customer is not eligible, in order to mitigate the increased likelihood that the pilot customer will not save on their overall energy costs.
46. The SJV Pilots Decision stated that it would be premature to approve any bill protection proposals that were submitted leading up to the decision's issuance because it was not clear which approach, if any, was the best given the amount of information available at that time.
47. The SJV Pilots Decision stated that the topic of bill protections would benefit from an in-depth workshop discussion in order to ensure that some level of bill protection costs was accounted for in the pilot budgets.
48. The SJV Pilots Decision authorized up to \$500 per participating household that receives appliance upgrades and identified the \$500 as a starting point for the possible per household costs.
49. Since the SJV Pilots Decision was issued, parties have conducted extensive analysis on the topic of bill protections for SJV pilot customers pursuant to the decision.
50. Based on analysis conducted by parties since the issuance of the SJV Pilots Decision, the Commission has a good sense of how much it will cost to enact a bill protections approach that will ensure total energy cost savings for SJV pilot participants.
51. Given that the bill protection mechanism is intended to mitigate potential energy cost increases between a pilot participant's pre-pilot costs and post-pilot costs, it makes sense that the bill protection discount and transitional community solar discount would be linked to the household that incurs these energy costs.
52. It is reasonable that the bill protection discount, and transitional community solar discount, is associated with the customer of record at the time of pilot

enrollment and that the discounts are terminated if there is a change in the customer of record during the 10-year period.

53. In SJV Rulemaking (R.)15-03-010, there was general consensus among parties that customers would save on pre-pilot to post-pilot energy costs by switching to natural gas from propane and wood-burning fuel.
54. Parties to the SJV proceeding have consistently demonstrated that natural gas is cheaper for customers than propane and wood-burning fuel.
55. SoCalGas' proposal to provide a \$500 bill protection discount over three years, sized based on seasonal variation, is a reasonable method to mitigate monthly bill variance for pilot customers transitioning to natural gas.
56. We do not have sufficient data to project the costs associated with transitional community solar discounts for pilot participants.
57. We recommend that the Commission in R.15-03-010 seek party input on the costs associated with transitional community solar discounts for pilot participants and modify the SJV Pilots Decision to allow PG&E and SCE to recover the costs associated with the transitional community solar discount approach authorized in this Resolution.
58. We recommend the Commission modify the SJV Pilots Decision to allow PG&E and SCE to recover the costs associated with the bill protection mechanism authorized in this Resolution that exceed the total bill protection funding approved in the SJV Pilots Decision.

THEREFORE IT IS ORDERED THAT:

- 1) Southern California Gas Company Advice Letter 5439-G is approved.
- 2) Pacific Gas and Electric Company Advice Letter 5496-E and Southern California Edison Company Advice Letter 3970-E are approved with the modifications set forth below and otherwise specified herein.
- 3) Pacific Gas and Electric Company (PG&E) and Southern California Edison Company (SCE) shall each implement a bill protection mechanism for customers enrolling in the San Joaquin Valley pilots in the utility's service territory by complying with the following directives. PG&E and SCE shall:
 - Provide a 20 percent bill protection discount to all electrification pilot participants on their monthly electricity bills for a five-year period after the first electric appliance is installed in a participant's home (see Appendix A for implementation requirements);
 - Conduct an evaluation of pilot participants' total energy costs savings beginning three years after the first pilot participant receives a bill protection discount (see Appendix A for evaluation requirements);

- If evaluation finds that all participants in the evaluation study, except quantitatively-measurable statistical outliers, experience energy costs savings (i.e., energy costs have not increased), PG&E and SCE shall provide a 10 percent discount to all electrification pilot participants on their monthly electricity bills for an additional five years; and
 - If the evaluation finds that any participants in the evaluation study, except quantitatively-measurable statistical outliers, experience an energy cost increase, PG&E and SCE shall continue to provide a 20 percent discount to all electrification pilot participants on their monthly electricity bills for an additional five years.
- 4) Pacific Gas and Electric Company (PG&E) and Southern California Edison Company (SCE) shall each submit Tier 2 Advice Letters (ALs) with an evaluation analyzing pilot participants' total energy costs savings (see Appendix A for evaluation requirements). PG&E and SCE shall each submit its AL no later than three years and six months after the utility's first pilot household receives its first monthly electricity bill with a bill protection discount.
- 5) Pacific Gas and Electric Company and Southern California Edison Company shall each send the Energy Division a confidential, securely transmitted dataset with all participating pilot customers' actual monthly electricity bill total costs at the same time the Tier 2 Bill Protection Evaluation Advice Letters are filed. This dataset will include at least 12 months of pre-pilot electricity bill data for all pilot participants in the evaluation study, including statistical outliers, and all post-pilot monthly electricity bill data available at the time of the advice letter filing.
- 6) If the Community Solar Green Tariff (CSGT) Program or Disadvantaged Community Green Tariff (DAC-GT) Program is unavailable to a pilot participant at the time the participant receives the first monthly bill protection discount, or DAC-GT is available but the customer is not eligible, Pacific Gas and Electric Company (PG&E) and Southern California Electric Company (SCE) shall provide a transitional 20 percent community solar discount to the pilot customer starting the same month the bill protection discount goes into effect. PG&E and SCE shall transition a pilot participant to either the DAC-GT program or CSGT program if and when those programs become available to each community, and as applicable based on the customer's eligibility for each program. If the CSGT or DAC-GT programs never become available for any given pilot customer during the 10-year bill protection period, or if DAC-GT becomes available but the customer is not eligible, PG&E and SCE shall

provide the transitional 20 percent community solar discount to the pilot customer for the duration of the 10-year bill protection period.

This Resolution is effective today.

I certify that the foregoing resolution was duly introduced, passed and adopted at a conference of the Public Utilities Commission of the State of California held on December 19, 2019; the following Commissioners voting favorably thereon:

ALICE STEBBINS
Executive Director

Appendix A

Pacific Gas and Electric Company (PG&E) and Southern California Edison Company (SCE) San Joaquin Valley (SJV) Pilot Bill Protection Requirements

Activity	Requirement
Bill Protection Mechanism	Bill protection discount shall be in addition to eligible California Alternate Rates for Energy (CARE) and Family Electric Rate Assistance Program (FERA) discounts
	Bill protection discount shall be in addition to eligible Community Solar Green Tariff (CSGT), Disadvantaged Community Green Tariff (DAC-GT), or transitional community solar discounts
	Applicable bill protection, CARE, FERA, CSGT, DAC-GT, and transitional community discounts shall be stacked sequentially from largest discount to smallest discount on customer's monthly electricity bill
	Bill protection discount shall be included on first monthly electricity bill that is issued after the first electric appliance is installed at the pilot participant's home as part of the pilot
	Bill protection discount and transitional community solar discount shall be associated with customer of record at the time of enrollment. If customer of record

	<p>moves out of the house with the electrification treatment during the 10-year bill protection period, the bill protection discount and transitional community solar discount shall be terminated. The new customer of record moving into the house with the electrification treatment shall not receive a bill protection discount.</p>
Bill Protection Evaluation	<p>The bill protection evaluation shall, at a minimum:</p>
	<p>Analyze total energy costs for all pilot participants who have received at least 24 consecutive months of electricity bills with a bill protection discount prior to advice letter filing date</p>
	<p>Base pre-pilot energy costs on propane bills voluntarily submitted by participants and 12 months of actual pre-pilot electricity bills</p>
	<p>Base post-pilot energy costs on 24 consecutive months of electricity bills, annualized to compare to pre-pilot total energy costs</p>
	<p>Analyze collected propane bill data and clearly explain any propane modeling included in the pre-pilot cost analysis</p>
	<p>Reference anonymized and aggregated post-pilot electricity bill data, using as much bill data that is available at the time of the advice letter filing</p>
	<p>Discuss any trends that indicate that energy cost savings increase over time as customers acclimate to new appliances</p>
	<p>Analyze whether, and to what degree, participants experience lower energy cost savings if they do not install both a heat pump space conditioning unit and heat pump water heater, and include propane usage in post-pilot costs if applicable</p>
	<p>Include a detailed explanation of the</p>

	quantitative analysis used to determine statistical outliers
	Include any qualitative justification for why any participants are considered outliers, along with a description of the steps taken to help these participants reduce their energy costs
	Request that the trigger for the 10 percent discount go into effect if data shows that all participants in the evaluation study except statistical outliers have reduced pre-pilot to post-pilot energy costs; or request 20 percent discount be kept in place if data does not demonstrate that all participants in the evaluation study except statistical outliers have reduced pre-pilot to post-pilot energy costs